

Volume 143, 1999

JOURNAL OF SOLID STATE CHEMISTRY

Editors

J. M. HONIG M. G. KANATZIDIS

Associate Editor

H.-C. ZUR LOYE



ACADEMIC PRESS

Copyright © 1999 by Academic Press
All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the Publisher. *Exceptions:* It is the policy of Academic Press that authors need not obtain permission in the following cases only: (1) to use their original figures or tables in their future works; (2) to make copies of their papers for use in their classroom teaching; and (3) to include their papers as part of their dissertations.

The appearance of the code at the bottom of the first page of an article in this journal indicates the Publisher's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (222 Rosewood Drive, Danvers, Massachusetts 01923), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1999 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0022-4596/99 \$30.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

Ⓢ

Contents of Volume 143

Number 1, February 15, 1999

REGULAR ARTICLES

- Electronic Structure of the Organic Conductors κ -ET₂Cu(SCN)₂ and κ -ET₂Cu[N(CN)₂]Br Studied Using Soft X-ray Absorption and Soft X-ray Emission** Cristian B. Stagaescu, Laurent-C. Duda, Kevin E. Smith, D.-K. Seo, M.-H. Whangbo, Denis Jeromé, Robert C. Haddon, James S. Brooks, Jinghua Guo, and Joseph Nordgren 1
- Structural and Physical Properties of the Solid Solution Series Bi₄V_{2-x}Ni_xO_{11-1.5x}** Said Nadir and Hugo Steinfink 9
- Double Salts in the Systems $Me^+X-Me^{2+}X_2-H_2O$ ($Me^+ = K, NH_4, Rb, Cs$; $Me^{2+} = Mn, Co, Ni$; $X^- = Cl, Br$)** St. Tepavitcharova, Chr. Balarew, Chr. Tzvetkova, and Ol. Angelova 16
- Low-Temperature Polymorphism in Tungsten Trioxide Powders and Its Dependence on Mechanical Treatments** E. Cazzanelli, C. Vinegoni, G. Mariotto, A. Kuzmin, and J. Purans 24
- A New Niobium Tungsten Oxide as a Result of an *in Situ* Reaction in a Gas Reaction Cell Microscope** M. J. Sayagués, J. L. Hutchison, and F. Krumeich 33
- The Phase Transitions between H_{0.13}V_{0.13}Mo_{0.87}O₃·0.26H₂O and MoO₃: An X-Ray, Thermal Analysis, and TEM Study** L. Dupont, D. Larcher, and M. Touboul 41
- Crystal Structure of the Mixed Oxides La_{0.7}Sr_{0.3}Co_{1-z}Mn_zO_{3±y} ($0 \leq z \leq 1$)** A. N. Petrov, V. I. Voronin, T. Norby, and P. Kofstad 52
- Mixed Inorganic–Organic Anion Frameworks: Synthesis and Crystal Structure of Fe₄(PO₄)₂(C₂O₄)(H₂O)₂** Zoe A. D. Lethbridge and Philip Lightfoot 58
- The Phase Diagram CaO–Al₂O₃–Ta₂O₅ and the Crystal Structures of Ca₂AlTaO₆ and CaAlTaO₅** M. Sales, G. Eguia, P. Quintana, L. M. Torres-Martinez, and A. R. West 62
- Bond-Valence Analysis of the Structure of (Ba_{0.875}Sr_{0.125})RuO₃** A. Santoro, I. Natali Sora, and Q. Huang 69
- Synthesis and Structure of an Unusual New Layered Aluminophosphate Containing Oxalate Groups, [NH₃CH₂CH₂NH₃]_{2.5}[Al₄H(HPO₄)₄(H₂PO₄)₂(C₂O₄)₄]** Philip Lightfoot, Zoe A. D. Lethbridge, Russell E. Morris, David S. Wragg, Paul A. Wright, Åke Kvik, and Gavin B. M. Vaughan 74
- Hydrothermal Synthesis and Structures of Two Tetramethylammonium Iron Molybdates (TMA)₂FeMo₆O₂₀ and [TMA]₂[Fe(H₂O)₆][Mo₈O₂₆]** J. Do, X. Wang, and A. J. Jacobson 77
- In Situ* Coupled Raman and Impedance Measurements of the Reactivity of Nanocrystalline SnO₂ versus H₂S** T. Pagnier, M. Boulouva, A. Galerie, A. Gaskov, and G. Lucazeau 86
- Niobium and Molybdenum Compounds with High Zinc Content: NbZn₃, NbZn₁₆, and MoZn_{20.44}** Tono Nasch and Wolfgang Jeitschko 95
- Préparation et structure cristalline d'un nouveau bis-diphosphate de bismuth et de sodium Na₅Bi(P₂O₇)₂** Habib Boughzala et Tahar Jouini 104
- Electrosubstitution at the Metal, Metal Compounds/Na–β''–Al₂O₃ Interface in the SOED Method** Yasumichi Matsumoto, Kazuaki Akagami, and Kai Kamada 111
- Method for Calculating Ionic and Electronic Defect Concentrations in Proton Containing Perovskites** Finn Willy Poulsen 115
- Modulated Structures in Oxidized Cerium Niobates** John G. Thompson, Ray L. Withers, and Frank J. Brink 122
- Magnetic Structure and Spin Reorientation Transition in ScMnO₃** M. Bieringer and J. E. Greedan 132

BRIEF COMMUNICATION

- Electron Paramagnetic Resonance Spectra of Pr⁴⁺ Ions Doped in Pyrochlore-Type Compounds La₂Sn₂O₇ and La₂Zr₂O₇** Keitaro Tezuka and Yukio Hinatsu 140

REGULAR ARTICLES

Synthesis and Structural Characterization of Two New Rare-Earth Manganese Germanates: $\text{CeMn}_2\text{Ge}_4\text{O}_{12}$ and $\text{GdMnGe}_2\text{O}_7$	C. Taviot-Gu��ho, P. L��one, P. Palvadeau, and J. Rouxel	145
$ALn_{1\pm x}\text{Bi}_{4\pm x}\text{S}_8$ ($A = \text{K, Rb}$; $Ln = \text{La, Ce, Pr, Nd}$): New Semiconducting Quaternary Bismuth Sulfides	Lykourgos Iordanidis, Jon L. Schindler, Carl R. Kannewurf, and Mercouri G. Kanatzidis	151
Magnetic Structure and Spin Reorientation in the Ternary Sulfides, $\text{Ni}_x\text{Cr}_{3-x}\text{S}_4$ ($x = \frac{1}{4}, \frac{1}{2}, \frac{3}{4}$)	Anthony V. Powell, Douglas C. Colgan, and Clemens Ritter	163
Vibrational and Thermal Evidence of Coordinated Water and Carboxylate Groups in Crystalline Calcium Malonate Dihydrate	E. V. Brusau, G. E. Narda, J. C. Pedregosa, G. Echeverria, and G. M. Punte	174
Characterization of Ternary Compounds in the $\text{BaO}:\text{Fe}_2\text{O}_3:\text{TiO}_2$ System: $\text{Ba}_6\text{Fe}_{45}\text{Ti}_{17}\text{O}_{106}$ and $\text{BaFe}_{11}\text{Ti}_3\text{O}_{23}$	T. A. Vanderah, W. Wong-Ng, B. H. Toby, V. M. Browning, R. D. Shull, R. G. Geyer, and R. S. Roth	182
Preparation and Crystal Structure of the Intermetallics $\text{La}_4\text{Mo}_7\text{Al}_{51}$ and $\text{La}_4\text{W}_7\text{Al}_{51}$	Verena M. T. Thiede and Wolfgang Jeitschko	198
Structural Study of $\text{La}_{0.8}\text{Sr}_{0.2}\text{Ga}_{0.85}\text{Mg}_{0.15}\text{O}_{2.825}$	Aniceta Skowron, Peng-nian Huang, and Anthony Petric	202
Crystal Growth and Defect Structure of Al^{3+}-Doped Rutile	U. Gesenhues and T. Rentschler	210
M��ssbauer Assessment of Cation Disorder in Columbite-Tantalite Minerals	M. S Augsburger, J. C. Pedregosa, G. M. Sosa, and R. C. Mercader	219
A New Nasicon-Type Phosphate $\text{Co}_{0.5}\text{Ti}_2(\text{PO}_4)_3$: I. Elaboration, Optical and Magnetic Properties	R. Olazcuaga, J. M. Dance, G. Le Flem, J. Derouet, L. Beaur��, P. Porcher, A. El Bouari, and A. El Jazouli	224
A New Nasicon-Type Phosphate: $\text{Co}_{0.5}\text{Ti}_2(\text{PO}_4)_3$ II. Simulation of Optical and Magnetic Properties	J. Derouet, L. Beaur��, P. Porcher, R. Olazcuaga, J. M. Dance, G. Le Flem, A. El Bouari, and A. El Jazouli	230
Synthesis and Crystal Structure of ZrP_2S_6 and ZrP_2S_7	D. R. Lott, T. Fincher, G. C. LeBret, D. A. Cleary, and G. L. Breneman	239
Hydrothermal Synthesis and Characterization of $M_2\text{Te}_3\text{O}_8$ ($M = \text{Mn, Co, Ni, Cu, Zn}$): A Series of Compounds with the Spiroffite Structure	Christopher R. Feger, George L. Schimek, and Joseph W. Kolis	246
Rodalquilarite Revisited: The Hydrothermal Synthesis and Structural Reinvestigation of $\text{H}_3\text{Fe}_2(\text{TeO}_3)_4\text{Cl}$	Christopher R. Feger, Joseph W. Kolis, Krzysztof Gorny, and Charles Pennington	254
Crystal Structure and Thermal Behavior of $\text{Cs}_2[\text{B}_4\text{O}_5(\text{OH})_4]\cdot 3\text{H}_2\text{O}$	M. Touboul, N. Penin, and G. Nowogrocki	260
High-Pressure Synthesis and Crystal Structure of a New Strontium Ruthenium Oxide: $\text{Sr}_2\text{Ru}_3\text{O}_{10}$	C. Renard, S. Daviero-Minaud, and F. Abraham	266
Phase Relations at 1500°C in the Ternary System $\text{ZrO}_2\text{--Y}_2\text{O}_3\text{--TiO}_2$	A. J. Feighery, J. T. S. Irvine, D. P. Fagg, and A. Kaiser	273
Structure and Properties of 1256 and 1267 Type $\text{Hg}_{1-x}\text{Re}_x\text{Ba}_2\text{Ca}_{n-1}\text{Cu}_n\text{O}_{2n+2+4x+\delta}$ Single Crystals	H. Schwer, R. Molinski, E. M. Kopnin, G. I. Meijer, and J. Karpinski	277
Structural Disorder in Solid <i>p</i>-Iodotoluene	Heliodoro Serrano-Gonz��lez, Kenneth D. M. Harris, Simon J. Kitchin, Angel Alvarez-Larena, Eug��nia Estop, Xavier Alcob��, Esperanza Tauler, Manuel Labrador, and David C. Apperley	285
Preparation, Characterization, and Thermal Stability of Lead Hydroxyapatite	Shigeru Sugiyama, Tomomi Nakanishi, Tomohiro Ishimura, Toshihiro Moriga, Hiromu Hayashi, Naoya Shigemoto, and John B. Moffat	296
AUTHOR INDEX FOR VOLUME 143		303

NOTICE

The Subject Index for Volume 143 will appear in the December 1999 issue as part of a cumulative index for the year 1999.